

### REMARKS/ARGUMENTS

Favorable reconsideration of this application, as presently amended and in light of the following discussion, is respectfully requested.

Claims 1-9 and 11-12 are pending in the present application. Claims 1-5, 7-9 and 11 are amended, Claim 10 is canceled, and Claim 12 is added by the present amendment. Support for the new and amended claims can be found in the original specification, claims and drawings.<sup>1</sup> No new matter is presented.

In the Office Action, Claim 9 is rejected under 35 U.S.C. § 101; Claims 1-11 are rejected under U.S.C. § 112, second paragraph; and Claims 1-11 are rejected under U.S.C. § 102(e) as anticipated by Shackleford et al. (U.S. Patent No. 6,985,918 B2, hereinafter Shackleford).

The Office Action rejects Claim 9 under 35 U.S.C. § 101 as directed to non-statutory subject matter. Specifically, the Office Action indicates that Claim 9 is a method claim that is neither “tied to a particular machine”, nor “transform[s] underlying subject matter to a different state or thing.” In response, Claim 9 is amended to recite that the method is performed “in a pseudorandom sequence generator”, and that the various features recited in Claim 9 are performed by components of the pseudorandom sequence generator (i.e., “a cellular automata random number generator of a first type”, “a cellular automata random number generator of a second type”, and “an adder”). Therefore, Claim 9 is “tied to a particular machine” and thus directed to statutory subject matter. Accordingly, Applicants respectfully request that the rejection of Claim 9 under 35 U.S.C. § 101 be withdrawn.

The Office Action rejects Claims 1-11 under 35 U.S.C. § 112, second paragraph, as indefinite. Regarding Claims 1-11, the Office Action asserts that the meaning of “higher

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<sup>1</sup> Support for the amended independent Claims 1 and 9 and 11 can be found at least in Figs. 1 and 3, and p. 18, l. 9 – p. 19, l. 20.

randomness” is unclear. In response, independent Claims 1, 9 and 11 are amended to recite “a first sequence with a first predetermined randomness and a first predetermined period” and “a second sequence with a second predetermined randomness lower than the first predetermined randomness, and a second predetermined period larger than the first predetermined period” to clarify that the randomness and the duration of the periods are relative to one another.

Measures of randomness for binary sequences are well known in the art. These measures include frequency, discrete transforms, and complexity. Applicants, therefore, respectfully submit that independent Claims 1, 9 and 11 each particularly point out and distinctly claim the subject matter which Applicants’ regard as the invention. Accordingly, Applicants respectfully request that the rejection of independent Claims 1, 9 and 11 (and the claims that depend therefrom) under 35 U.S.C. § 112, second paragraph, be withdrawn.

Regarding the rejection of Claims 1-11 under 35 U.S.C. § 102(e) as anticipated by Shackleford, Applicants respectfully submit that amended independent Claims 1, 9 and 11 recite novel features clearly not disclosed by Shackleford.

Independent Claim 1, for example, is amended to recite an apparatus for generating pseudorandom sequences comprising:

- cellular automata random number generator of a first type for generating a first sequence with a first predetermined randomness and a first predetermined period;
- cellular automata random number generator of a second type for generating a second sequence with a second predetermined randomness lower than the first predetermined randomness, and a second predetermined period larger than the first predetermined period; and
- adders for performing bit-to-bit mod2 sum of the first sequences and the second sequences.

Independent Claims 9 and 11, while directed to alternative embodiments, are similarly amended.

In rejecting Claims 1-11, the Office Action cites col. 3, l. 10 – col. 8, l. 30 of Shackleford, asserting that the reference discloses all the features of independent Claims 1, 9

and 11. Shackleford describes a computer automata (CA) based random number generator (RNG) that carries out three broad processes: determining an interconnection topology, screening CA-based RNG candidates based on the interconnection topology, and subjecting the RNG candidates through a suite of tests for those that pass the screening process.

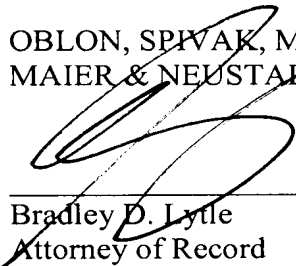
Shackleford, however, neither describes nor suggest generating pseudorandom sequences using “cellular automata random number generator of a first type for generating a first sequence with a first predetermined randomness and a first predetermined period” and using “cellular automata random number generator of a second type for generating a second sequence with a second predetermined randomness lower than the first predetermined randomness, and a second predetermined period larger than the first predetermined period.” Furthermore, Shackleford does not describe or suggest “performing bit-to-bit mod2 sum of the first sequences and the second sequences.”

Accordingly, Applicants respectfully request that the rejection of Claims 1-11 (and the claims that depend therefrom) under 35 U.S.C. § 102 be withdrawn.

Consequently, in view of the present amendment and in light of the foregoing comments, it is respectfully submitted that the invention defined by Claims 1-9 and 11-12 is patentably distinguishing over the applied references. The present application is therefore believed to be in condition for allowance and an early and favorable reconsideration of the application is therefore requested.

Respectfully submitted,

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